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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,945	04/05/2002	Gunther Fischbach	5067-22PUS	6937

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EXAMINER

MACKEY, JAMES P

ART UNIT PAPER NUMBER

1722

DATE MAILED: 12/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/089,945

Applicant(s)

FISCHBACH, GUNTHER

Examiner

James Mackey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 17-32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4-5-02 6) ☐ Other: ____

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1. The drawings are objected to under 37 CFR 1.84(h)(5) because Figures 1, 2 and 3 show(s) modified forms of construction in the same view. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

It is noted that the Preliminary Amendment filed with the application amends the specification by providing a description of Figures 3 and 3A, it appears that no corresponding drawing changes have been submitted.

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not provide proper antecedence for the tie bar having a hollow rectangular cross section, as is claimed in claim 32.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 17-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between the “at least one linear motor” and the “force transmission element” has not been clearly and positively recited in claim 17.

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Claim 25 is indefinite as to the function of the force transmission element when the inductor combs are fixed in the movable mold clamping plate (since the reaction rail is fixed to the stationary end plate, it appears that no part of the linear motor is connected to the force transmission element when the combs are fixed in the movable mold clamping plate).

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 17 and 21-25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Japan 63-1516 (Figures 1 and 2).

Japan 63-1516 clearly teaches a closing device comprising a double five-point inward-acting toggle lever mechanism 6 for moving the movable mold clamping plate 5, a crosshead force transmission element 6a attached to the lever mechanism by a connecting lever, and a linear motor 43, 43a connected to the force transmission element for pivoting the lever mechanism in order to move the movable mold clamping plate relative to the stationary mold clamping plate 1, the linear motor comprising a reaction rail 41, 41a and an inductor comb 42, 42a, wherein the reaction rail may be fixed in the crosshead with the comb fixed in the stationary end plate 2 (Figure 2), or wherein the reaction rail may be fixed in the stationary end plate 2 and the comb being fixed in the crosshead (Figure 1).

7. Claims 17 and 21-24 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Japan 61-154823 (Figures 1 and 2).

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Japan '823 clearly teaches a closing device comprising a double five-point inward-acting toggle lever mechanism 16, a crosshead force transmission element 15 attached to the lever mechanism by a connecting lever, and a linear motor connected to the crosshead for pivoting the lever mechanism in order to move the movable mold clamping plate 5 relative to the stationary mold clamping plate 1, the linear motor comprising a reaction rail 9 attached to the crosshead and a comb 7, 13 attached to the stationary end plate 2.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 63-1516.

Japan 63-1516 teaches the closing device substantially as claimed, as described above, except for explicitly disclosing a drag line for supplying energy and coolant to the comb when the comb is attached to the crosshead (Figure 1), and except for explicitly disclosing that the toggle lever mechanism locks the movable mold clamping plate in a closed position without being driven in the closed position. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Japan 63-1516, if not in fact intended, by providing a drag line to the comb connected to the crosshead in order to supply the necessary energy and coolant for the linear motor to function properly.

10. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 63-1516 in view of Farrell (U.S. Patent 4,088,432).

Japan 63-1516 teaches the closing device substantially as claimed, as described above, except for the linear motor driving the crosshead comprising a double comb motor (claim 18), or two motors arranged pairwise (claim 19). Farrell discloses a mold closing device including a toggle lever mechanism moved by a crosshead 54 which is driven by two linear hydraulic drives 56, 58 arranged pairwise (note also col. 6, lines 46-50, stating that a single drive could also be utilized). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Japan 63-1516 by providing the crosshead drive motor as two motors arranged pairwise, as disclosed in Farrell, in order to permit the use of smaller drive motors and to balance the forces applied to the crosshead. It would have been further obvious to a skilled artisan to have provided the linear motor as a double comb motor for the same purpose of utilizing smaller inductor combs as well as balancing the applied forces.

11. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 63-1516 in view of either Guindani et al. (U.S. Patent 5,603,969) or German 295 02 641 (cited by Applicant).

Japan 63-1516 teaches the closing device substantially as claimed, as described above, except for the toggle lever mechanism being an outward-acting toggle lever mechanism connected to an actuating frame. However, such is a conventional toggle mechanism in a mold closing device, as disclosed in either Guindani et al. or German '641. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Japan 63-1516 by providing the toggle lever mechanism as an outward-acting toggle lever mechanism connected to an actuating frame, as disclosed in either Guindani et al. or German '641, since

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such were recognized equivalent toggle mechanisms for providing closing force to a movable mold plate in a mold closing device.

12. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 63-1516 in view of Taira et al. (U.S. Patent 5,279,778).

Japan 63-1516 teaches the closing device substantially as claimed, as described above, except for explicitly disclosing that the toggle lever mechanism locks the movable mold clamping plate in a closed position without the toggle drive motor means being driven in the closed position. Taira et al. discloses a mold closing device wherein the toggle lever mechanism locks the movable mold clamping plate in a closed position such that the toggle drive motor means is not required to be driven to maintain the clamping force. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Japan 63-1516 by providing the toggle mechanism such that the clamping force is maintained in the closed position without input from the toggle drive motor means, as disclosed in Taira et al., in order to minimize the use of power to the drive motor means and to reduce the load on the toggle drive motor means.

13. Claims 28-32 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or fairly suggest a closing device comprising a lever mechanism, a force transmission element and at least one linear motor, the closing device further comprising an arresting device acting on at least one lever of the lever mechanism for preventing the movable mold plate from opening without being driven when the movable mold plate is in a closed position, as claimed in claim 28, or the closing device further comprising a

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stationary end plate, wherein at least one of the reaction rails of the linear motor is a tie bar having a hollow rectangular cross section fixed to the stationary end plate and to the stationary mold clamping plate, as claimed in claim 32.

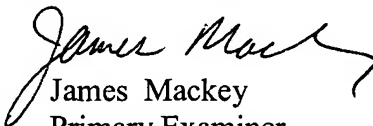
14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Stirn et al. (U.S. Patent 6,419,861; col. 3, lines 49-51 and claim 10) disclose a toggle mold closing device wherein the drive motor may be a linear motor. Shibuya et al. (U.S. Patent 6,124,648; col. 9, lines 35-36) disclose a mold closing device including a linear motor, wherein the shaft 16 of the linear motor may be connected to a toggle closing device. German 38 18 599 (discussed in the instant specification) discloses a linear motor driving a toggle mold closing device.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mackey whose telephone number is 703-308-1195. The examiner can normally be reached on M-F, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on 703-308-0457. The fax phone number for the organization where this application or proceeding is assigned is 703-892-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


James Mackey
Primary Examiner
Art Unit 1722

12/9/03

jpm
December 8, 2003